

# BioMap and Living Waters

## Guiding Land Conservation for Biodiversity in Massachusetts

### Core Habitats of Westfield

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:  
**Natural Heritage & Endangered Species Program**  
**Massachusetts Division of Fisheries and Wildlife**  
**Executive Office of Environmental Affairs**  
**Commonwealth of Massachusetts**

Produced in 2004



# BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

---

### Table of Contents

#### Introduction

What is a Core Habitat?

Core Habitats and Land Conservation

In Support of Core Habitats

#### Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

What does 'Status' mean?

#### Understanding Core Habitat Summaries

#### Next Steps

Protecting Larger Core Habitats

Additional Information

#### Local Core Habitat Information\*

BioMap: Species and Natural Communities

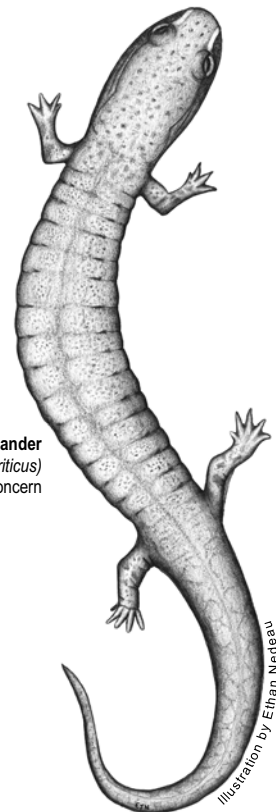
BioMap: Core Habitat Summaries

Living Waters: Species and Habitats

Living Waters: Core Habitat Summaries

\* Depending on the location of Core Habitats, your city or town may not have all of these sections.

**Spring Salamander**  
(*Gyrinophilus porphyriticus*)  
Species of Special Concern



*Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.*



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)



# BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

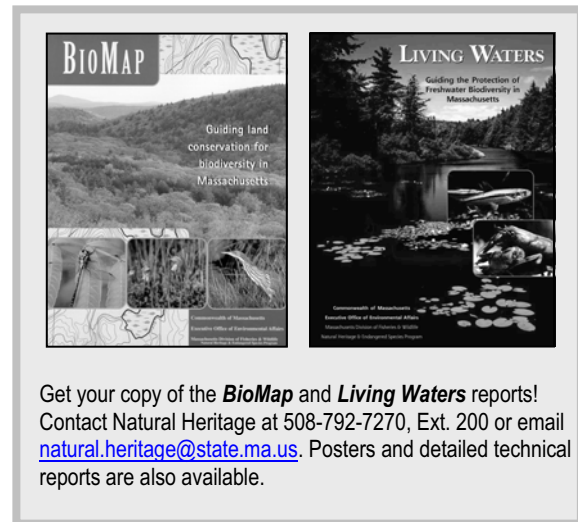
### Introduction

In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generations to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, **BioMap** and **Living Waters**. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

### What is a Core Habitat?

Both BioMap and Living Waters delineate **Core Habitats** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.



### Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the **riparian areas**, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

### In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as **Supporting Natural Landscape** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)



# BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, *Critical Supporting Watersheds* highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from [www.mass.gov/mgis](http://www.mass.gov/mgis).

## Understanding Core Habitat Species, Community, and Habitat Lists

### What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at [www.nhesp.org](http://www.nhesp.org).

The list of species and communities within a Core Habitat contains only the species and

**Table 1.** The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap		
Biodiversity Group	Species and Verified Natural Community Types	
	Included in BioMap	Total Statewide
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types
Living Waters		
Biodiversity Group	Species	
	Included in Living Waters	Total Statewide
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)



# BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

### What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- **Endangered** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- **Threatened** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- **Special Concern** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial **watch list** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural

### Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The **Massachusetts Natural Heritage Atlas** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

communities reflects the documented number and acreages of each community type in the state:

- **Critically Imperiled** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- **Imperiled** communities typically have 6-20 sites or few remaining acres in the state.
- **Vulnerable** communities typically have 21-100 sites or limited acreage across the state.
- **Secure** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.



### Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries and Wildlife  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)



# BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

---

### Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific *fact sheets* at [www.nhesp.org](http://www.nhesp.org).

### Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

### Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be

very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

### Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

*by Phone* 508-792-7270, Ext. 200

*by Fax:* 508-792-7821

*by Email:* [natural.heritage@state.ma.us](mailto:natural.heritage@state.ma.us).

*by Mail:* North Drive  
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: [www.mass.gov/mgis](http://www.mass.gov/mgis)

Check out [www.nhesp.org](http://www.nhesp.org) for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - \* Field guides
  - \* Natural Heritage Atlas, and more!



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# BioMap: Species and Natural Communities

## Westfield

---

### Core Habitat BM789

#### Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
High-Terrace Floodplain Forest		Imperiled
Small-River Floodplain Forest		Imperiled
Transitional Floodplain Forest		Imperiled

#### Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Green Dragon	<i>Arisaema dracontium</i>	Threatened
Many-Fruited False-Loosestrife	<i>Ludwigia polycarpa</i>	Endangered

#### Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Brook Snaketail	<i>Ophiogomphus aspersus</i>	Special Concern
Elderberry Long-Horned Beetle	<i>Desmocerus palliatus</i>	Special Concern
Zebra Clubtail	<i>Stylurus scudderi</i>	Endangered

#### Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Endangered
Bird Migration Habitat		-----
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern
Grassland Bird Habitat		-----
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern
Wood Turtle	<i>Clemmys insculpta</i>	Special Concern



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# BioMap: Species and Natural Communities

## Westfield

---

### Core Habitat BM816

#### Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Circumneutral Rock Cliff Community		Vulnerable
Circumneutral Rocky Summit/Rock Outcrop Community		Imperiled
Circumneutral Talus Forest/Woodland		Vulnerable
Forest Seep Community		Secure
Hemlock-Hardwood Swamp		Secure
Hickory - Hop Hornbeam Forest/Woodland		Imperiled
Level Bog		Vulnerable
Shrub Swamp		Secure

#### Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Autumn Coralroot	<i>Corallorhiza odontorhiza</i>	Special Concern
Black Maple	<i>Acer nigrum</i>	Special Concern
Cornel-Leaved Aster	<i>Doellingeria infirma</i>	Endangered
Glaucous Sedge	<i>Carex glaucoidea</i>	Endangered
Green Rock-Cress	<i>Arabis missouriensis</i>	Threatened
Hairy Agrimony	<i>Agrimonia pubescens</i>	Threatened
Hoary Tick-Trefoil	<i>Desmodium canescens</i>	Watch Listed
Houghton's Flatsedge	<i>Cyperus houghtonii</i>	Endangered
Large-Bracted Tick-Trefoil	<i>Desmodium cuspidatum</i>	Threatened
Linear-Leaved Milkweed	<i>Asclepias verticillata</i>	Threatened
Narrow-Leaved Vervain	<i>Verbena simplex</i>	Endangered
New England Blazing Star	<i>Liatris scariosa</i> var. <i>novae-angliae</i>	Special Concern
Nodding Chickweed	<i>Cerastium nutans</i>	Endangered
Philadelphia Panic-Grass	<i>Panicum philadelphicum</i>	Special Concern



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# BioMap: Species and Natural Communities

## Westfield

Purple Clematis	<i>Clematis occidentalis</i>	Special Concern
Red Mulberry	<i>Morus rubra</i>	Endangered
Roundleaf Shadbush	<i>Amelanchier sanguinea</i>	Special Concern
Sensitive Rare Plant		
Shining Wedgegrass	<i>Sphenopholis nitida</i>	Threatened
Spiked False Oats	<i>Trisetum triflorum ssp molle</i>	Endangered
Swamp Lousewort	<i>Pedicularis lanceolata</i>	Endangered
Toothcup	<i>Rotala ramosior</i>	Endangered
Violet Wood-Sorrel	<i>Oxalis violacea</i>	Endangered
Wapato	<i>Sagittaria cuneata</i>	Threatened

### Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
New Jersey Tea Inchworm	<i>Apodrepanulatrix liberaria</i>	Endangered
Orange Sallow Moth	<i>Rhodoecia aurantiago</i>	Threatened
Pine Barrens Itame	<i>Itame sp. 1 near inextricata</i>	Special Concern
Pine Barrens Zanclognatha	<i>Zanclognatha martha</i>	Threatened

### Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Endangered
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Threatened
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Special Concern
Marbled Salamander	<i>Ambystoma opacum</i>	Threatened
Sensitive Rare Vertebrate		
Spring Salamander	<i>Gyrinophilus porphyriticus</i>	Special Concern
Upland Sandpiper	<i>Bartramia longicauda</i>	Endangered
Wood Turtle	<i>Clemmys insculpta</i>	Special Concern



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# BioMap: Species and Natural Communities

## Westfield

---

### Core Habitat BM917

#### Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Ridgetop Chestnut Oak Forest/Woodland		Secure
Ridgetop Pitch Pine - Scrub Oak Community		Imperiled

#### Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern
Sensitive Rare Vertebrate		

### Core Habitat BM997

#### Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Pitch Pine - Oak Forest/Woodland		Secure
Pitch Pine - Scrub Oak Community		Imperiled

### Core Habitat BM1054

#### Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	Threatened
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Special Concern
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern

### Core Habitat BM1111

#### Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# BioMap: Core Habitat Summaries

## Westfield

---

### Core Habitat BM789

This Core Habitat encompasses riparian areas along the Manhan River and several of its tributaries. It includes fields, wet meadows, shallow marshes, shrub and forested wetlands, and a large oxbow along the west side of the Connecticut River. This diverse area contains habitats for three species of state-protected rare turtles, as well as Bald Eagles. It supports rare insects like the Endangered Zebra Clubtail dragonfly, and rare plants such as the Endangered Many-Fruited False-Loosestrife. The Core Habitat encompasses several floodplain forest communities, including an unusually high-quality Small-River Floodplain Forest. Parts of this Core Habitat are already protected as conservation land, including MassAudubon's Arcadia Wildlife Sanctuary, and further protection of key areas is needed.

#### Natural Communities

This Core Habitat contains a diversity of Floodplain Forest communities of varied quality. The Small-River Floodplain Forest within this Core Habitat is one of only three high-quality known locations of this community type in the state. Small-River Floodplain Forests are Silver Maple-Green Ash forests occurring on alluvial soils of small rivers and streams. This rare type of forest is often heavily impacted by hydrology alterations and is usually associated with a suite of invasive exotic species; however, this occurrence has remained in excellent condition and is disturbance free. The Transitional Floodplain and High-Terrace Floodplain Forests here are also important occurrences of these uncommon community types, especially because of their proximity to each other.

#### Plants

Two populations of the very rare Many-Fruited False-Loosestrife grow on exposed mud and depressions within floodplains along the Connecticut River. The Threatened Green Dragon, a relative of Jack-in-the-Pulpit, is also growing in floodplain habitat along the Connecticut.

#### Invertebrates

The Manhan River and its tributaries within this Core Habitat provide important habitat for rare dragonflies including the Endangered Zebra Clubtail and the Brook Snaketail. In addition, wet meadows and shrub swamps with Elderberry located at various points along this stretch of the Manhan River provide habitat for the Elderberry Longhorned Beetle. Portions of the Manhan River flow through extensive areas of developed and agricultural land, which threatens the river and its rare species inhabitants with hydrologic alteration and pollution.



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

*For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)*

# BioMap: Core Habitat Summaries

## Westfield

---

### Vertebrates

The extensive, connected areas of habitat that border the Manhan River and its tributaries provide significant habitat for Wood Turtles. Documented observations indicate that Spotted Turtles and Eastern Box Turtles are present here as well. A number of nearby roads, including Rte. 10, have likely adversely affected populations of these turtles through road mortality. This Core Habitat should be a priority for conservation planning for Wood Turtles.

The section of the Connecticut River and its forested shorelines within this Core Habitat provide relatively undisturbed foraging and perching habitat for wintering and non-breeding Bald Eagles. Protection and management of wet meadows and shallow marshes near the west side of the Connecticut River can benefit a variety of birds, including rails, bitterns, and certain species of waterfowl and shorebirds. Managed grasslands at Arcadia Sanctuary provide habitat for grassland birds. The diverse habitats within this Core Habitat provide important migration habitat for a number of bird species.

### Core Habitat BM816

This long Core Habitat encompasses critical habitat for a diversity of rare plants and animals. It includes the ridgeline and adjacent slopes of East Mountain and Mount Tom, as well as the cultural grasslands at Barnes Municipal Airport. Together these diverse habitats support a number of outstanding rare plant populations, in addition to several rare species of moths, amphibians, reptiles, and grassland birds. Also of note are the many high-quality natural communities, such as the largest-known Circumneutral Talus Forest in the state. Although much of the area within this Core Habitat is already protected as conservation land, other large and important sections remain unprotected.

### Natural Communities

This long Core Habitat contains multiple species-rich, high-quality natural communities of rocky East Mountain and Mount Tom. It includes the largest-known Circumneutral Talus Forest in the state. Circumneutral Talus Forest communities develop on boulder strewn slopes below certain cliffs, with scattered trees, shrubs, vines, and ferns. There is often a gradient of vegetation density as the slope changes, with more trees on the lower slope. The high-quality talus forest here has variations in slope, rock size, exposure, and light, and consequently supports a great diversity of plant associations. Also contained within this Core Habitat is a large Hickory-Hop Hornbeam Forest/Woodland of excellent quality that is associated with many state-listed rare species. Hickory-Hop Hornbeam Forests are open, mixed hardwood forests dominated by various Hickory species and with significant Hop Hornbeam in the subcanopy. This community type is characterized by a sparse shrub layer, and a rich diversity of herbaceous flora. Also of note within this Core Habitat are: several high-quality Circumneutral Rocky Summit/Rock Outcrop communities associated with hilltops, a very high-quality Level Bog found just west of the ridge in Westfield, and other wetlands that occupy depressions in and between the mountains.

### Plants

A tremendous concentration of rare plant species is growing within this very important Core Habitat. Some of the noteworthy rare plant populations within this area include a fine stand of Black Maple, the state's largest occurrence of Cornel-Leaved Aster, several high-quality occurrences of Green Rock-Cress, and two outstanding populations of Purple Clematis.



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

*For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)*

# BioMap: Core Habitat Summaries

## Westfield

---

### Invertebrates

This Core Habitat includes two main areas, both of which are important habitat for rare moths and butterflies. The first area is the late-successional pine barrens and early-successional pine-oak woodland in Westfield, located immediately to the east of the Barnes Airport runway. The second area, which is larger and less fragmented, consists of the dry, open woodlands along the ridgetops of East Mountain and the Mount Tom Range. Rare species of moths inhabiting these areas include the New Jersey Tea Inchworm, which requires the New Jersey Tea plant growing in these habitats, and the Orange Sallow moth, whose larvae feed on False Foxgloves growing along the ridgetops. This Core Habitat is in close enough proximity to similar Core Habitat in South Hadley and Hadley to allow for occasional dispersal of Orange Sallow moths and other rare insects between these two areas.

### Vertebrates

This Core Habitat encompasses an elongate area that includes the entire ridgeline and adjacent slopes of East Mountain and Mount Tom in Holyoke and Easthampton. This area provides habitat for several species of state-protected rare amphibians and reptiles, including Marbled, Jefferson, Four-toed, and Spring Salamanders, as well as Eastern Box Turtles. It is characterized by rocky forested hillsides, talus slopes, seasonal pools, forested wetlands with sphagnum pools, and small brooks. It also provides breeding habitat for a variety of forest birds and important migration habitat along the north-south migration corridor of the Connecticut River Valley.

Grasslands at Barnes Municipal Airport within this Core Habitat support small breeding populations of Grasshopper Sparrows and Upland Sandpipers. Airfield management that minimizes mowing between May 1 and July 31 each year will minimize direct mortality of eggs and young of these species, while maintaining taller grass that discourages use by larger birds that pose hazards to aircraft, for example crows, geese, and gulls.

### Core Habitat BM917

This large Core Habitat encompasses both Shatterack and Tekoa Mountains, whose steep slopes support a mix of natural communities adapted to harsh ridgetop conditions. This mainly roadless area provides important habitat for several species of rare reptiles, including Eastern Box Turtles. About half of the Core Habitat is protected as conservation land.

### Natural Communities

This Core Habitat includes the enormous rocky mass of Mount Tekoa, whose steep slopes support natural communities specialized to endure exposure, intense weather, fire, and drought. Ridgetop Pitch Pine-Scrub Oak and Ridgetop Chestnut Oak communities form a mosaic on Mount Tekoa's slopes and summit and are some of the best examples of these community types in the state. The Ridgetop Pitch Pine-Scrub Oak community typically occurs on acidic bedrock along mountain ridges. This fire dependant community is tolerant of extremely severe growing conditions. Meanwhile, Ridgetop Chestnut Oak Forests are open forests of dry ridgetops, dominated by Chestnut Oak with an often dense shrub understory. This community type often occupies dry upland sites with thin soil over acidic bedrock on ridges and slopes.



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

*For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)*

# BioMap: Core Habitat Summaries

## Westfield

---

### Vertebrates

The large roadless areas within this Core Habitat provides significant habitat for Eastern Box Turtles and other rare species of reptiles. Coldwater brooks within this Core Habitat may provide habitat for Spring Salamanders. Conservation efforts should focus on expanding existing protected areas with the goal of maximizing the extent of contiguous roadless areas.

### Core Habitat BM997

#### Natural Communities

This Core Habitat contains good-quality Pitch Pine-Oak Forest/Woodlands and Pitch Pine-Scrub Oak communities. The Pitch Pine-Oak Forest community is the most widespread forest type of southeastern Massachusetts. This forest community is highly variable in its species composition and ranges from mostly Pine with scattered Oaks to predominantly Oak with scattered Pines. Meanwhile, Pitch Pine-Scrub Oak communities are globally rare, fire dependant shrub-dominated communities, with scattered to dense trees. They provide habitat for many rare species, and develop on dry, poor soils, usually made up primarily of sand. For both of the communities here, their structure and species compositions are maintained by fire, as is the mix of the two community types. Multiple fire scars are found on the trunks of canopy-sized Pitch Pine trees within this Core Habitat, and show that some fire regime remains intact at this site.

### Core Habitat BM1054

#### Vertebrates

The mix of uplands and wetlands in this Core Habitat collectively support a rich assemblage of rare amphibians and reptiles. It comprises mixed upland forest, seasonal pools, forested and scrub-shrub wetlands, and fields. Within this area, Eastern Spadefoot Toads and Jefferson Salamanders use seasonally flooded pools for breeding and Four-toed Salamanders occur in small forested pools and seeps where sphagnum moss is abundant. Spotted Turtles are also present and use a variety of these habitats. This area is only partially protected within conservation lands.



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

*For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)*

# Living Waters: Species and Habitats

## Westfield

---

### Core Habitat LW165

#### Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Agassiz's Clam Shrimp	<i>Eulimnadia agassizii</i>	Endangered
American Clam Shrimp	<i>Limnadia lenticularis</i>	Special Concern

### Core Habitat LW206

#### Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Creeper	<i>Strophitus undulatus</i>	Special Concern
Triangle Floater	<i>Alasmidonta undulata</i>	Special Concern

### Core Habitat LW361

#### Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Creeper	<i>Strophitus undulatus</i>	Special Concern
Triangle Floater	<i>Alasmidonta undulata</i>	Special Concern



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)

# Living Waters: Core Habitat Summaries

## Westfield

---

### Core Habitat LW165

This site is the only known locality of Agassiz's Clam Shrimp in the world, and one of only three known sites for the American Clam Shrimp in Massachusetts. These clam shrimps in the Spinicaudate group are very rare and fascinating aquatic invertebrates. The name "clam shrimp" was given to these tiny crustaceans because they have a carapace that closely resembles a clam shell.

### Core Habitat LW206

The sandy riverbed of the meandering Manhan River provides important habitat for seven of the state's twelve freshwater mussel species, including the rare Triangle Floater and the rare Creeper mussel. Two reaches of the Manhan River in Southamptton are especially productive for mussels, supporting robust and successfully reproducing populations of both the Triangle Floater and the Creeper.

### Core Habitat LW361

The Westfield River supports six out of the state's twelve freshwater mussel species, including robust and reproducing populations of the rare Triangle Floater and the rare Creeper mussel. These mussels get a foothold in the sands and gravels that build up in the numerous impoundments, pools, and bars that break up this otherwise quick flowing, hard bottomed river.



**Natural Heritage  
& Endangered Species  
Program**

**Massachusetts Division of Fisheries and Wildlife**  
North Drive, Westborough, MA 01581  
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821  
<http://www.nhesp.org>

*For more information on rare species and natural communities, please see our fact sheets online at [www.nhesp.org](http://www.nhesp.org)*

## Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the



Natural Heritage &  
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: [www.nhesp.org](http://www.nhesp.org).